

## CLAIMS

*Sub A1*

1. Radio communications apparatus having a transmission power control feature for controlling the transmission power of a local station by using the transmission power control bit transmitted from a distant station to the local station, comprising:

communication state detector which detects the communication state based on the reception power of a received signal transmitted from the distant station; and

10 transmission power control range changer which changes the transmission power control range corresponding to the transmission power control bit based on the detected communication state.

2. The radio communications apparatus according to claim 1, wherein said communication state detector has a reception power change detector which detects a change in reception power in a local station.

3. The radio communications apparatus according to claim 1, wherein said communication state detector has a distant station transmission power change detector which detects a change in transmission power in a distant station.

4. The radio communications apparatus according to claim 1, wherein said communication state detector has a control state detector which detects the control state of the local station.

5. The radio communications apparatus according to claim 1, wherein said communication state detector has a local station transmission power change detector which detects a change in transmission power in the local station.

5 6. The radio communications apparatus according to claim 1, wherein said communication state detector has a transmission power control bit change detector which detects a change in said transmission power control bit.

10 7. The radio communications apparatus according to claim 2, wherein said reception power change detector has a reception power comparator which compares a previous reception power with a current reception power.

15 8. The radio communications apparatus according to claim 2, wherein said reception power change detector has a fading pitch detector which detects the fading pitch of reception power

9. The radio communications apparatus according to claim 2, wherein said reception power change detector has a reception power threshold comparator which compares the reception power with a predetermined threshold.

20 *Subj* 10. A transmission power control method for radio communications apparatus for controlling transmission power of a local station by using a transmission power control bit transmitted from a distant station to the local station, comprising:

*Cont*

and  
a communication state detecting step which detects the communication state based on the reception power of a received signal transmitted from the distant station; and  
transmission power control range changing step which changes  
5 the transmission power control range corresponding to the transmission power control bit based on the detected communication state.

11. The transmission power control method for radio communications apparatus according to claim 10,  
10 wherein said communication state detecting step has a <sup>command</sup> reception power change detecting step which detects a change in reception power in a local station, <sup>mobile</sup>  
wherein said transmission power control range changing step changes the transmission power control range depending on the  
15 detected change in reception power.

12. The transmission power control method for radio communications apparatus according to claim 10,  
wherein said communication state detecting step has a  
135 distant station transmission power change detecting step which  
20 detects a change in transmission power in a distant station and a reception power change detecting step which detects a change in reception power in a local station,  
wherein said transmission power control range changing step changes the transmission power control range depending on the

detected change in transmission power in the distant station and the detected change in reception power in the local station.

13. The transmission power control method for radio communications apparatus according to claim 10,

5 wherein said communication state detecting step has a control state detecting step which detects the control state of  
*mobile*  
a local station,

wherein said transmission power control range changing step changes the transmission power control range depending on the  
10 detected control state.

14. A transmission power control method for radio communications apparatus according to claim 10,

wherein said communication state detecting step has a local station transmission power change detecting step which detects  
15 a change in transmission power in a local station and a  
transmission power control bit change detecting step which  
detects a change in the transmission power control bit,  
*mobile*

wherein said transmission power control range changing step changes the transmission power control range depending on the  
20 detected change in transmission power in the local station and the detected change in the transmission power control bit.

15. The transmission power control method for radio communications apparatus according to claim 11 or 12,

wherein said reception power change detecting step has a

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reception power } comparing step which compares a previous  
reception power with a current reception power,

wherein a change in reception power is detected based on the  
comparison results of the reception power comparing step.

5 16. The transmission power control method for radio  
communications apparatus according to claim 11 or 12,

wherein said reception power change detecting step has a  
fading pitch detecting step which detects the fading pitch of  
reception power,

10 wherein a change in reception power is detected based on the  
detected fading pitch.

17. The transmission power control method for radio  
communications apparatus according to claim 11 or 12,

15 wherein said reception power change detecting step has a  
reception power comparing step which compares a previous  
reception power with a current reception power and a fading pitch  
detecting step for detecting the fading pitch of reception power,

wherein a change in reception power is detected based on the  
comparison results of the reception power comparing step and the  
20 detected fading pitch.

18. A transmission power control method for radio  
communications apparatus according to claim 11 or 12,

wherein said reception power change detecting step has a  
reception power threshold comparing step for compares the

reception power with a predetermined threshold,

wherein a change in reception power is detected based on the comparison results of the reception power threshold comparing step

5 19. A computer-readable recording medium stored as a program for executing the transmission power control method for the radio communications apparatus according to any one of claims 10 through 18.